

What is claimed is:

1. A method of forming silver oxide particles, the method comprising:
mixing a first solution and a second solution together to form a mixture, wherein
the first solution comprises a silver salt dissolved in water and the second
solution comprises a surfactant dissolved in an organic solvent; and
contacting the mixture with a base to precipitate silver oxide particles that are at
least partially encapsulated by the surfactant.
2. The method according to claim 1 wherein the first solution comprises
silver nitrate dissolved in deionized water.
3. The method according to claim 2 wherein the organic solvent is
completely miscible with water.
4. The method according to claim 2 wherein the organic solvent is acetone.
5. The method according to claim 1 wherein the surfactant comprises a fatty
acid or a derivative of a fatty acid.
6. The method according to claim 5 wherein the fatty acid is oleic acid.
7. The method according to claim 1 wherein the base is selected from the
group consisting of sodium hydroxide and potassium hydroxide.
8. The method according to claim 1 further comprising:
separating the surfactant encapsulated silver oxide particles from the mixture;
and
washing the surfactant encapsulated silver oxide particles.

9. The method according to claim 8 wherein the surfactant encapsulated silver oxide particles are sequentially washed with water and acetone.
10. The method according to claim 8 further comprising:
drying the washed surfactant encapsulated silver oxide particles.
11. The method according to claim 10 further comprising:
screening the dried surfactant encapsulated silver oxide particles to remove aggregates.
12. The method according to claim 1 wherein the surfactant encapsulated silver oxide particles have an average particle size of less than or equal to about 100 nm.
13. A composition of matter comprising particles of silver oxide having an average particle size of less than or equal to about 100 nm, wherein the silver oxide particles are encapsulated by a surfactant that inhibits Ostwald ripening.
14. The composition of matter according to claim 13 wherein the surfactant is a fatty acid.
15. The composition of matter according to claim 14 wherein the fatty acid is oleic acid.
16. The composition of matter according to claim 13 wherein the particles of silver oxide are in dry powder form.
17. The composition of matter according to claim 13 wherein the particles of silver oxide are dispersed in a liquid carrier.

18. An ink composition for use in forming a thin conductive film in an electronic device, the ink composition comprising particles of silver oxide that are encapsulated by a surfactant dispersed in a carrier.

19. The ink composition according to claim 18 wherein the surfactant is a fatty acid.

20. The ink composition according to claim 19 wherein the fatty acid is oleic acid and the particles of silver oxide have an average particle size of less than or equal to about 100 nm.